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**Hemostasis and Animal Venoms**; Edited by Hubert Pirkle and Francis S. Markland; Marcel Dekker; New York, 1988; 628 pages; $180.00

Since 1934, when the late Professor Sir R.G. Macfarlane first reported the use of Russell's viper venom as a styptic in patients with haemophilia, a host of haemostatically-active components have been isolated and characterised from snake venoms and there are now few haemostasis laboratories, whether diagnostic or research, in which these materials are not used as routine reagents. Despite this fact, there remains a great deal of ignorance regarding the precise mechanism of action of snake venoms on haemostatic pathways and hence of the many potential pitfalls awaiting those who seek to use them for clinical diagnosis.

Both the benefits and the limitations of using snake venoms for this purpose are highlighted in this book, which was born out of a satellite Symposium held during the Xth Congress of the International Society on Thrombosis and Haemostasis in San Diego in 1985. The fact that so many of the world's leading researchers in this field presented data or reviews at this Symposium, makes the publication a valuable reference book for anyone working in this complicated field.

The 44 chapters it contains are a mixture of original research presentations, grouped around reviews, which help the uninitiated reader to put the former into perspective. The major haemostasis-influencing components found in snake venoms, i.e., activators of coagulation, fibrinolysis and platelets, inhibitors and haemorrhagins, are dealt with in 5 of the 7 sections. The remaining two sections cover clinical trials/diagnostic use of venoms and miscellaneous studies carried out in vitro or in animals. As a useful reference guide, there are both taxonomic and subject indexes.

The fact that much of the original research contained in the book has now, in 1990, been published elsewhere, does not detract from the usefulness of this book as a reference publication and I would thoroughly recommend it to anyone undertaking clinical or laboratory studies involving use of snake venoms either in the laboratory or in the field. I sincerely hope that similar symposia are initiated at regular intervals and that the book will be but the first of a series on the topic. Now, 5 years after the meeting, the cost of this edition will probably limit its sales.

Ronald A. Hutton

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**Biomineralization: Chemical and Biochemical Perspectives**; Edited by S. Mann, J. Webb and R.J.P. Williams; VCH Verlagsgesellschaft; Weinheim, 1989; xxiv + 541 pages; DM 274.00, £98.00

This book is strikingly different from most, if not all, previous books that dealt with biomineralisation. For example, there are no chapters devoted to the mineralisation of bone or cartilage, although teeth are given two chapters (one on vertebrate teeth, but the other on iron in molluscan teeth), and no discussion of hormones. Some will consider these omissions quite shocking, others may feel that these aspects of biomineralisation already have sufficient exposure.

The perspective taken by nearly all the authors is that of the eclectic natural philosopher who wishes to understand the full range of interactions between inorganic crystals and living organisms. This is a fascinating task, as these problems lie at the borders between crystallography (both the most modern structural and the classical morphological sort), protein chemistry, and the chemistry of ions in, and coming out of, solution. An equally diverse range of experimental techniques needs to be applied. Furthermore, as Professor Williams says in the first chapter, an understanding of biomineralisation could give insights into the more general problem of morphogenesis in which the same exquisite control is exhibited.

The major part of the book is concerned with mineralisation in lower organisms, and deals with calcium carbonates, calcium, strontium and barium sulphates, amorphous silica, bacterioferritins and magnetite amongst other salts. There are also chapters on in vitro studies of calcium phosphate precipitation, and on ferritin and haemosiderin, which are of direct relevance to higher organisms. Crystallochemical strategies, matrix-crystal interactions in $CaCO_3$ biomineralisation, and stereochemical and structural relations between macromolecules and crystals are discussed in a further three chapters. Some chapters have sections on the specialised techniques used, and one chapter is devoted to proton beam elemental analysis.

Much elegant work is reported. One study that particularly appealed to me was of the oriented growth of vaterite on the lower surface of a monolayer of stearic acid deposited onto a supersaturated solution of calcium bicarbonate. Study of the compression isotherms of the stearic acid indicated that Ca binding to the carboxylate head-groups preceded nucleation at the monolayer surface. This experimental arrangement leaves the surface on which nucleation takes place very accessible, so it might also be possible to follow the process by X-ray scattering using synchrotron radiation.

There is some unnecessary repetition between chapters, particularly in their introductory material. Two almost identical figures appear as well as two tables of the same solubility products with slightly different values. No doubt tighter editorial control could have prevented these very minor defects, but this might have delayed the publication which would have been a pity as the authors have been clearly at pains to include the very recent literature, including many 1988 and 1989 papers.

The editors and authors are to be congratulated on this book which will, I expect, be a landmark in our understanding and appreciation of biomineralisation. It is highly recommended for close study by those concerned with the biochemical and biophysical processes of the deposition of inorganic salts in biological systems.

J.C. Elliott